

2009-03-23 16:40 FROM:KIM,SHIN & YU 32733091

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KOREAN INTELLECTUAL PROPERTY OFFICE**KOREAN PATENT ABSTRACTS**

(11)Publication number: 1989-002524
(43)Date of publication of application: 10.04.1989

(21)Application number: 1988-0008218

(22)Date of filing: 02.07.1988

(30)Priority: 02.07.1987(JP-U-1987) 1987-100934
02.07.1987(JP-U-1987) 1987-100935

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(51)Int. Cl F01N 3/10

(54) PARTICULATE PURGING APPARATUS FOR DIESEL ENGINE EXHAUST

Abstract: None

Representative Figure: Fig. 1

Specifications

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[Title Of The Invention]**Particulate Purging Apparatus For Diesel Engine Exhaust****[Brief Description Of The Drawings]**

Fig. 1 is schematic diagram showing the entire structure of an embodiment of the present invention.

Fig. 2 is flow chart showing the process of control of the particulate collecting trap(2) after regeneration started.

Fig. 3, is flow chart showing the process of control during the regeneration and until the regeneration of the trap(2) is ended.

This application is published by the gist only.

(57) Claims**[Claim 1]**

An apparatus for purging particulates contained in exhaust gas of a diesel engine comprising a trap equipped with an electric heat disposed in an exhaust passage of the diesel engine, a bypass passage branched from said exhaust passage to bypass said trap and a control valve disposed on said bypass passage to control the quantity of exhaust gas flowing into said bypass passage, so that particulates are ignited and burnt by the exhaust gas whose temperature is raised while flowing past said electric heats;

said apparatus further comprising means for detecting the quantity of particulates accumulated in said trap;

a temperature sensor disposed on an upstream side of said trap for measuring the temperature of the exhaust gas flowing into said trap; and

a control device for controlling a current supply to said electric heater and for controlling an open-close operation of said control valve on the basis of output

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signals from said quantity detecting means and said temperature sensor.

[Claim 2]

An apparatus according to claim 1, wherein a collecting material for collecting said particulates is provided in said trap, said quantity detecting means is provided by pressure sensors located on the upstream and downstream sides respectively of said collecting material, and alternator for exclusively supplying current to said electric heater is interposed between said electric heater and said control device, and said control device controls current supply to the field coil of said alternator so that, when current is supplied to said field coil current generated from said alternator is supplied to said electric heater.

[Claim 3]

An apparatus according to claim 2, wherein said control device includes means for deciding the timing of regeneration of said particulate collecting material on the basis of the output signals from said two pressure sensors, and first temperature deciding means for deciding whether or not the exhaust gas temperature is higher than a predetermined temperature on the basis of the output signal from said temperature sensor, so that, when said regeneration timing deciding means decides that the regeneration timing has been reached, and said first temperature deciding means decides that said predetermined temperature has been exceeded, said generated current is supplied to said electric heater and said control valve is opened.

[Claim 4]

An apparatus according to claim 3, wherein said control device includes first predetermined period deciding means for deciding whether or not a predetermined period of time has elapsed after said current was supplied to said electric heater and after said control valve was opened, so that, when said first predetermined period deciding means decides that the predetermined period of time has elapsed, said current supply to said electric heater is stopped, and said control valve is closed.

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[Claim 5]

An apparatus according to claim 2 or 4, wherein said control apparatus includes second temperature deciding means for deciding whether or not the exhaust gas temperature is lower than a predetermined temperature on the basis of the output signal from said temperature sensor, and second predetermined period deciding means for deciding whether or not the state of a temperature decided by said second temperature deciding means and which is lower than the predetermined temperature has continued over a predetermined period of time, so that said control valve is maintained in its open position until said second predetermined period deciding means decides that the predetermined period of time has elapsed after the state of current supply to said electric heater was changed over to the non-supply mode from the supply mode.

[Claim 6]

An apparatus according to claim 2, wherein said control valve is located at one position in said bypass passage and is fully closed during normal operation but is opened to a present predetermined opening upon the supply of current to said electric heater.

[Figure 2]**Start****S1: Regeneration timing?****S2: T****S3: Heater current on****S4: Open throttle valve**

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S5: t

S6: Heater current off

S7: Close Throttle valve

End

[Figure 3]

Start

S1: Regeneration Timer?

S3: Heater current on

S4: Open throttle valve

S5: t

S6: Heater current off

S10: T1

S11: t1

S7: Close throttle valve

End